

ABSTRACT OF THE DISCLOSURE

A method for is provided for measuring by ionization mobility spectrometry relatively high concentrations of water in argon, hydrogen, nitrogen and helium, including the followings operative steps: (a) introducing the gas to be analyzed into an IMS instrument (10) with a counter-
5 flow of pure gas; (b) obtaining a signal (19) variable over time and proportional to the number of ions detected by an ion detector (14) of the IMS instrument (10); (c) determining two time intervals (A, B) corresponding to the drift times in the IMS instrument (10) of the H_3O^+ and $(\text{H}_2\text{O})_2^+$ ions; (d) obtaining the peaks of the signal (19) in the two determined time intervals (A, B); and (e)
10 calculating the water concentration in the gas to be analyzed according to the ratio between the intensity of the two peaks obtained in the signal (19).